STATE OF MAINE
BOARD OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF

NORDIC AQUAFARMS, INC Belfast and Northport Waldo County, Maine A-1146-71-A-N L-28319-26-A-N L-28319-TG-B-N L-28319-4E-C-N L-28319-L6-D-N L-28319-TW-E-N W-009200-6F-A-N	))))))))))	APPLICATION FOR AIR EMISSION, SITE LOCATION OF DEVELOPMENT, NATURAL RESOURCES PROTECTION ACT, and MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM/WASTE DISCHARGE LICENSES

PRE-FILED REBUTTAL TESTIMONY OF BRETT DOYON

1. Michael Lannon provides testimony that the blast plan provides inconsistences. He states that:
    a. The "Potential Blasting Limits" are unclear.
    b. That no assessment was done for potential adverse effects of blasting on protected natural resources and structures.

2. Frederick Johnson/GEI testifies that construction activities could damage the Upper or Lower Dam near the project area.

3. This testimony rebuts these statements because:
    a. The "Potential Blasting Limits" depicts the full limits of the project, and is a worst case scenario for the limits of blasting.
    b. Assessments were made on potential for adverse effects on blasting and protected resources. Nordic Exhibit 30.
    c. The assessments indicate that blasting on the entirety of the project would not negatively impact any receptors including the Upper and Lower Dams.

4. The blast plan was a preliminary document as the exact extent of ledge removal cannot fully be determined until full excavation of overburden is completed on the site. This is why the full project limits were depicted as the "Potential Blasting Limits." As additional information is provided these limits of work can, and most likely will, be reduced.

5. Assessments were made on potential for adverse effects on neighboring structures. Vibration predictions were provided for several scenarios and all predictions provided in the blast plan were below the applicable Maine DEP performance standards in 38 MRSA § 490 Z-(14) (I) and (K). When the exact limits of blasting are determined, similar calculations will be used to stay below the approved limits. Blasting will be monitored with seismographs at the closest protected natural resource or structure to ensure that these limits are maintained.

6. The assessment of adverse effects and vibration predictions for the Upper and Lower Dams confirm that neither dam will be affected by blasting. If rock removal is required and blasting is deemed to be unsafe next to the existing dams, other methods of rock removal, including mechanical removal of the ledge would be utilized in these areas.

7. Nordic Exhibit 31 is a revised drawing with a ½ mile radius from the project for pre-blast surveys. The pre-blast surveys will be completed, as required by regulation, prior to the start of blasting. This process includes: Providing appropriate notices to property owners, arranging appointments for those owners who desire a survey. Pre-blast surveys will be conducted by a Maine Drilling & Blasting representative. Results of those surveys will be documented through video or still photographs and appropriate narration or written reports. The property owner will be offered to have their well water tested for quality of water. These results will be submitted to the Department at the property owner's authorization.

8. Airblast limits associated with blasting are regulated by the Maine DEP. All airblasts related to blasting would be monitored at the nearest protected location to the blast area. Blasting will be conducted within the airblast limits established by the Maine DEP performance standard at 38 MRSA § 490 Z-(14) H.

[INTENTIONALLY LEFT BLANK]

Dated 1-15,2020

By. _____

_____, _____

STATE OF Maine
County of Kennebec, ss.

1 15, 2020

Personally appeared the above-named Brett Doyon and made oath as to the truth of the foregoing pre-filed testimony.

Before me,

DALE A. THOMAS, JR.
NOTARY PUBLIC
State of Maine
My Commission Expires Sep. 29, 2026

Notary Public / Attorney at law

Loaded Hole-Blast Design for:

Maine Drilling & Blasting

NORDIC EXHIBIT 30

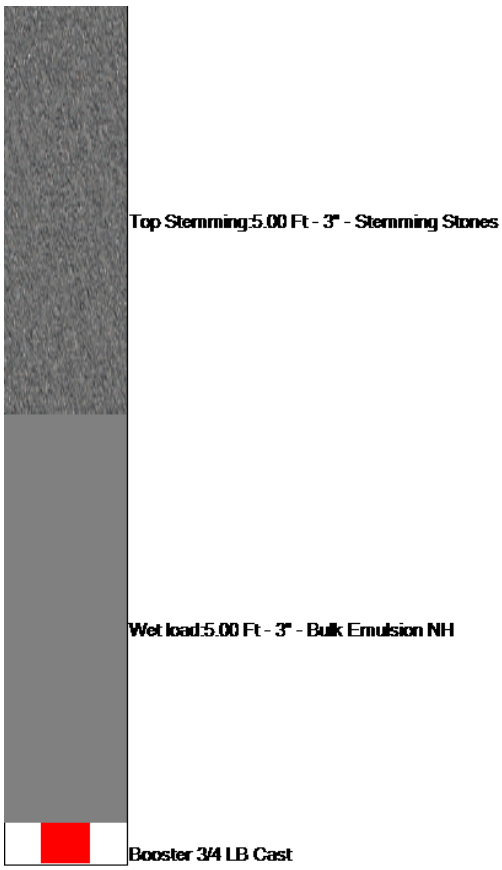
Job Blast Plan Assistance
Owner/Site Nordic Aquafarms
Location: Belfast, ME **Division:** Eastern
Customer Cianbro Corp
Author bdoyon On:7/20/2018 Updated By bdoyon On: 7/30/2018
Blast Plan Description: Open-Bulk

7/30/2018 9:00 AM

APENDIX A. - Blast Design Plan:

Est. Number Of Holes:	*50*
Hole Depth:	*10.00 Ft*
Hole Diameter:	*3 in*
Burden:	*6.00 Ft*
Spacing:	*6.00 Ft*
Holes per Delay:	*1*
Pounds Per Delay:	*19.43 Lbs*
Pounds Per Hole:	*19.43 Lbs*
Total est. Pounds:	*971.50 Lbs*
Powder Factor:	*1.46 Lbs/Cy*
Decks:	*0*

Loaded Hole Depth - Diameter - Product



Blast Plan Notes:

Vibration Prediction (formula based on Dupont Handbook)

Site Factor (k) :	*160*	*Ground Constant based on Site/Rock Conidtions*
Distance Ft (d)	*100*	*Distance to Structure*
Lbs per Delay (w)	*19.43*	*Lbs explosives per 8 milisecond delay*
Scaled Distance (sd)	*22.69*	*(sd = d/ square root of w)*
Estimated PPV	*1.08*	*(ppv = k * sd ^ -1.6)*

Typical for Production work consistent with holes 10 Ft deep at 100 from a structure utilizing 3' In diameter at a 6 Ft by 6 Ft pattern.

Plan View/Timing Design (please see attached timing diagram)

Loaded Hole-Blast Design for:

Maine Drilling & Blasting

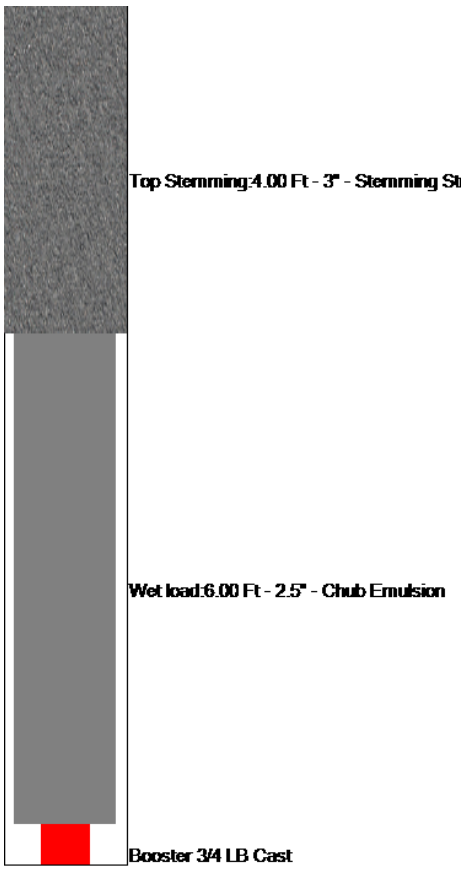
Job Blast Plan Assistance
Owner/Site Nordic Aquafarms
Location: Belfast, ME **Division:** Eastern
Customer Cianbro Corp
Author bdoyon On:7/20/2018 Updated By bdoyon On: 7/30/2018
Blast Plan Description: Open-Stick

7/30/2018 8:59 AM

APENDIX A. - Blast Design Plan:

Est. Number Of Holes:	*50*
Hole Depth:	*10.00 Ft*
Hole Diameter:	*3 in*
Burden:	*5.00 Ft*
Spacing:	*6.00 Ft*
Holes per Delay:	*1*
Pounds Per Delay:	*16.07 Lbs*
Pounds Per Hole:	*16.07 Lbs*
Total est. Pounds:	*803.50 Lbs*
Powder Factor:	*1.45 Lbs/Cy*
Decks:	*0*

Loaded Hole **Depth - Diameter - Product**



Blast Plan Notes:

Vibration Prediction (formula based on Dupont Handbook)

Site Factor (k) :	*160*	*Ground Constant based on Site/Rock Conidtions*
Distance Ft (d)	*100*	*Distance to Structure*
Lbs per Delay (w)	*16.07*	*Lbs explosives per 8 milisecond delay*
Scaled Distance (sd)	*24.95*	*(sd = d/ square root of w)*
Estimated PPV	*0.93*	*(ppv = k * sd ^ -1.6)*

Typical for Production work consistent with holes 10 Ft deep at 100 from a structure utilizing 3' In diameter at a 5 Ft by 6 Ft pattern.

Plan View/Timing Design (please see attached timing diagram)

Loaded Hole-Blast Design for:

Maine Drilling & Blasting

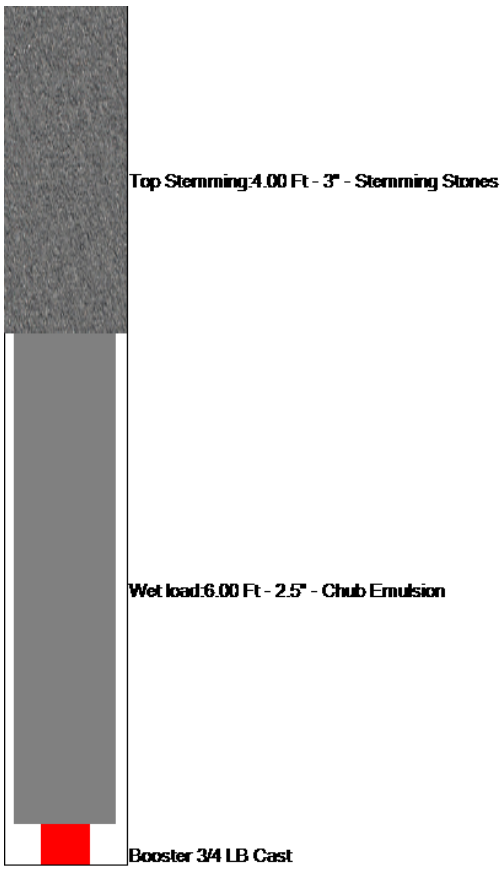
Job Blast Plan Assistance
Owner/Site Nordic Aquafarms
Location: Belfast, ME **Division:** Eastern
Customer Cianbro Corp
Author bdoyon On:7/20/2018 Updated By bdoyon On: 7/30/2018
Blast Plan Description: 100ft away trench

7/30/2018 9:05 AM

APENDIX A. - Blast Design Plan:

Est. Number Of Holes:	*50*
Hole Depth:	*10.00 Ft*
Hole Diameter:	*3 in*
Burden:	*5.00 Ft*
Spacing:	*4.00 Ft*
Holes per Delay:	*1*
Pounds Per Delay:	*16.07 Lbs*
Pounds Per Hole:	*16.07 Lbs*
Total est. Pounds:	*803.50 Lbs*
Powder Factor:	*4.33 Lbs/Cy*
Decks:	*0*

Loaded Hole **Depth - Diameter - Product**



Blast Plan Notes:

Vibration Prediction (formula based on Dupont Handbook)

Site Factor (k) :	*160*	*Ground Constant based on Site/Rock Conidtions*
Distance Ft (d)	*100*	*Distance to Structure*
Lbs per Delay (w)	*16.07*	*Lbs explosives per 8 milisecond delay*
Scaled Distance (sd)	*24.95*	*(sd = d/ square root of w)*
Estimated PPV	*0.93*	*(ppv = k * sd ^ -1.6)*

Typical for Production work consistent with holes 10 Ft deep at 100 from a structure utilizing 3' In diameter at a 5 Ft by 4 Ft pattern.

Plan View/Timing Design (please see attached timing diagram)

Loaded Hole-Blast Design for:

Maine Drilling & Blasting

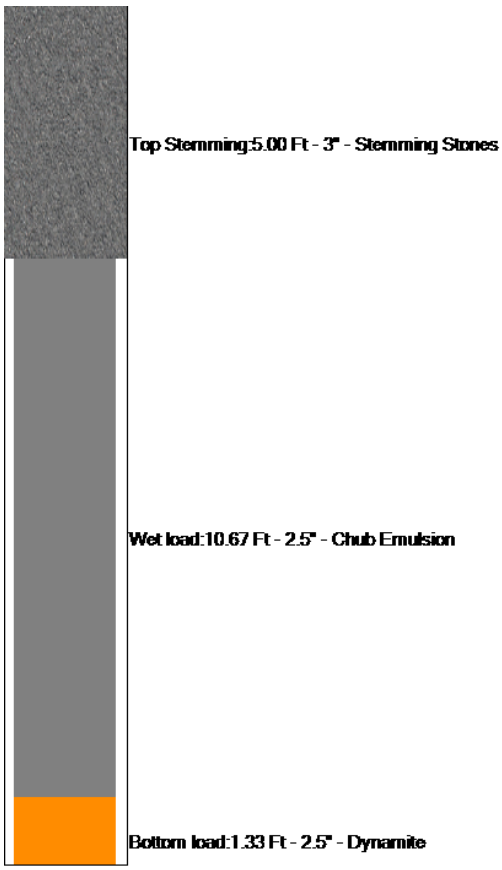
Job Blast Plan Assistance
Owner/Site Nordic Aquafarms
Location: Belfast, ME **Division:** Eastern
Customer Cianbro Corp
Author bdoyon On:4/18/2019 Updated By bdoyon On: 4/18/2019
Blast Plan Description: Trench Blasting 200FT from Structure

4/18/2019 10:05 AM

APENDIX A. - Blast Design Plan:

Est. Number Of Holes:	*50*
Hole Depth:	*17.00 Ft*
Hole Diameter:	*3 in*
Burden:	*4.00 Ft*
Spacing:	*5.00 Ft*
Holes per Delay:	*1*
Pounds Per Delay:	*32.84 Lbs*
Pounds Per Hole:	*32.84 Lbs*
Total est. Pounds:	*1,642.00 Lbs*
Powder Factor:	*5.21 Lbs/Cy*
Decks:	*0*

Loaded Hole Depth - Diameter - Product



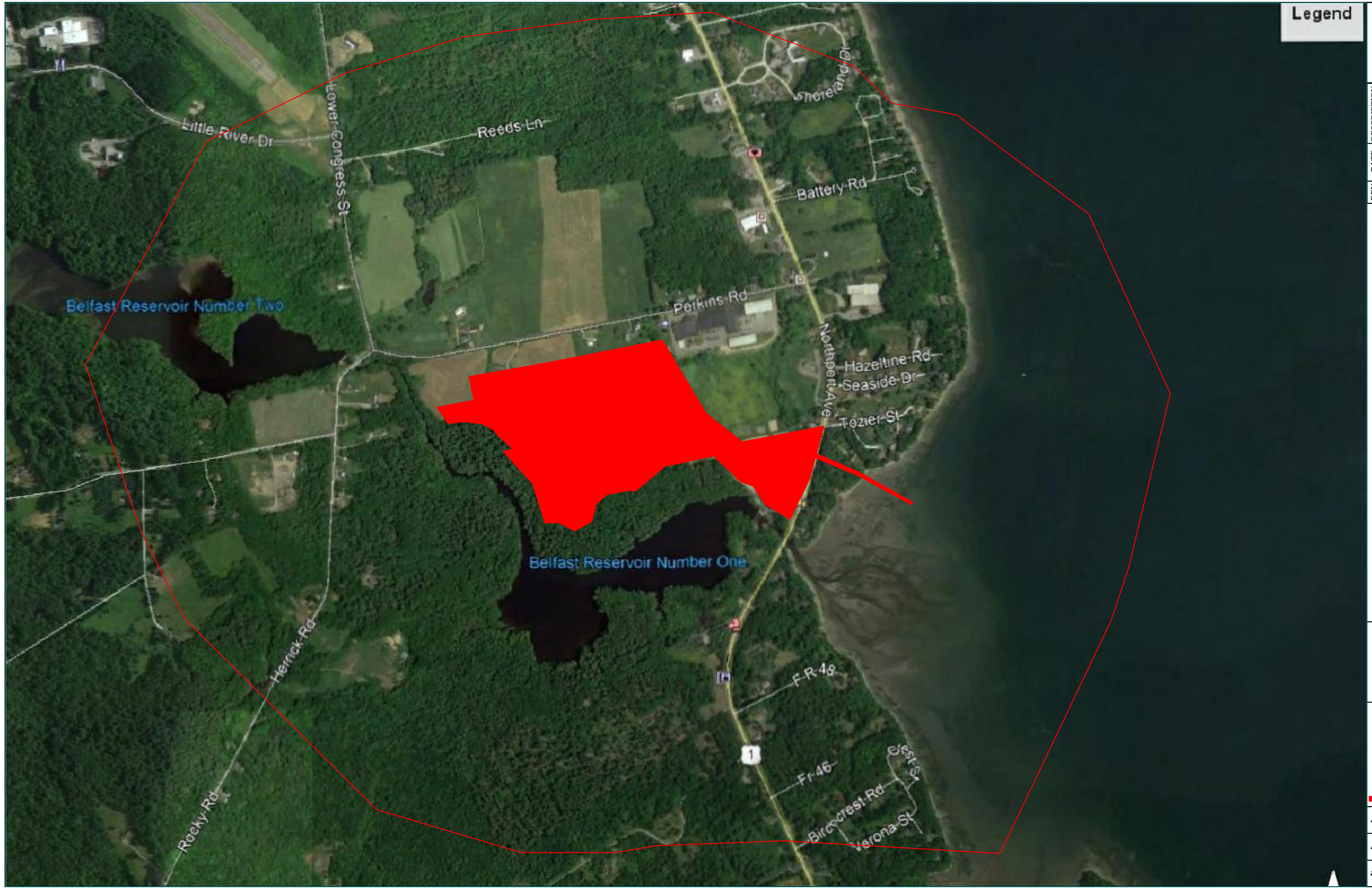
Blast Plan Notes:

Vibration Prediction (formula based on Dupont Handbook)

Site Factor (k) :	*160*	*Ground Constant based on Site/Rock Conidtions*
Distance Ft (d)	*200*	*Distance to Structure*
Lbs per Delay (w)	*32.84*	*Lbs explosives per 8 milisecond delay*
Scaled Distance (sd)	*34.90*	*(sd = d/ square root of w)*
Estimated PPV	*0.54*	*(ppv = k * sd ^ -1.6)*

Typical for Production work consistent with holes 17 Ft deep at 200 from a structure utilizing 3' In diameter at a 4 Ft by 5 Ft pattern.

Plan View/Timing Design (please see attached timing diagram)



REV	DATE	DESCRIPTION

NORDIC AQUAFARMS
NORTHPORT AVE
BELFAST, ME

PRE-BLAST
SURVEY
DRAWING

MaineDrilling
&Blasting

DRAWN: BJD

DATE: 01/08/20

SCALE: N.T.S